F208. COGNITION, POSITIVE SYMPTOMS, AND INTERNET USE FOR MENTAL HEALTH IN PEOPLE WITH PSYCHOSIS

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Background: People with severe mental illness are increasingly using digital resources for mental health, including social media and online interventions. However, individuals’ ability to engage with or benefit from such resources may be impaired by deficits in cognition and insight, and experiences of psychotic symptoms, including paranoia about cyber-security or motives of others in online social interactions. This study aimed to explore the association between cognition, positive symptoms, and internet use for mental health information in adults with psychosis.

Methods: This study used baseline data collected as part of a broader research program investigating a digital recovery-focused intervention for psychosis. Participants completed a questionnaire on their existing internet use, both in general and for mental health information, and a range of cognitive and functioning measures. Cognitive variables included premorbid IQ, estimated using the Wechsler Test of Adult Reading, and composite scores for processing speed, working memory, and executive functioning. The Positive and Negative Syndrome Scale was also administered, with 17 adults with psychosis (mean age = 39.82 years; range = 18–65; SD = 11.0) taking part in this study, of whom 157 (87.7%) were regular internet users. Of these, 107 (68.2%) reported regularly using the internet for mental health information, with 33 (20.9%) doing so daily, 28 (17.7%) weekly, and 46 (29.3%) monthly or less. General websites were most commonly used for this purpose (n = 92; 58.6%), followed by video streaming sites (n = 62; 39.5%), social networking sites (n = 52; 33.2%), and forums (n = 34; 21.7%). When age and frequency of general internet use were controlled for, use of any type of website for mental health information was predicted by lower scores on Grandiosity (Exp(B) = .675, 95% CI = .513,.886, p = .005); mental health-related social media use was significantly predicted by lower estimated premorbid IQ (Exp(B) = .964, 95% CI = .937,.991, p = .010); lower scores on Unusual Thought Content predicted use of both video networking sites (Exp(B) = .629, 95% CI = .403,.981, p = .041) and forums (Exp(B) = .576, 95% CI = .379,.876, p = .010) for mental health information; while use of general websites for mental health information was not uniquely predicted by any cognitive or symptom variables.

Discussion: While internet use for mental health information is now common among people with severe mental illness, the presence of psychotic symptoms may inhibit such information-seeking behaviour, particularly when using interactive websites such as video streaming sites and forums. Cognitive functioning may also affect how online sources of mental health information are selected. However, using general websites for mental health information is common regardless of cognition and symptom severity, with implications for how such resources should be designed.

F209. TRANSCRANIAL DIRECT CURRENT STIMULATION (tDCS) IN A NON-CLINICAL POPULATION AS A MODEL FOR TREATMENT OF AUDITORY VERBAL HALLUCINATIONS IN SCHIZOPHRENIA

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Background: We used transcranial direct current stimulation (tDCS) in a non-clinical population to simulate a model of tDCS-treatment for auditory verbal hallucinations (AVH) in schizophrenia. In tDCS, a low current is induced via two electrodes attached to the scalp. The anode and cathode typically up- and downregulate neuronal activity, respectively. It was suggested that AVH arise due to two main neuronal pathways: hyper-activity in the language areas in the temporo-parietal cortex and hypo-activity of the cognitive control areas in the dorsolateral prefrontal cortex. Accordingly, it was further hypothesized that by reducing activity in the temporo-parietal cortex through cathodal tDCS and simultaneously increasing neuronal activity in the dorsolateral prefrontal cortex with anodal tDCS, AVH could be reduced. Patients with schizophrenia, particularly those with AVH show additionally deficits on language and cognitive control tasks, which are known to draw on temporo-parietal and dorsolateral prefrontal cortex regions, respectively. In order to test the model we thus reversed the electrode montage in non-clinical participants and tested whether they would show similar deficits as schizophrenia patients. In addition, the healthy participants underwent magnetic resonance spectroscopy (MRS) to test whether, in accordance with the model, glutamate levels increase under the anode, and decrease under the cathode area.

Methods: Eighteen participants were recruited in a convenience sample (7 male/11 female) with a mean age of 26 years. They were tested twice with a mean interval of 8 days. In one session they received real 2mA tDCS for 20 min, while in an MRI scanner (GE 750, 3T). The other session was a sham stimulation control. The order of real/sham stimulation was counterbalanced and stimulation was double-blind. In each session, MRS was measured using a PRESS sequence (TE=35ms, 1500ms) before and after stimulation. MRS data were acquired from two voxels, one in the left dorsolateral prefrontal cortex (22ml) and one in the left temporo parietal cortex (25ml), right underneath anode and cathode electrodes, respectively. MRS data were analyzed using LCModel software; water-scaled estimates for glutamate and glutamine combined (Glx) are reported herein, with N-Acetylaspartate (NAA) and creatine (Cre) inspected to ensure stability of the Glx measure. Glx levels were located to a 2x2x2 ANOVA with the with-participant factors Stimulation (real vs sham), Stimulation area (dorsolateral prefrontal cortex versus temporo-parietal cortex), and Time (Pre and Post stimulation).

Results: Two datasets were excluded from analysis due to poor spectral quality. As expected, NAA (F(1,16)=.809, p=.382) and Cre (F(1,16)=.005, p=.944) did not show significant changes. There was a trend for Glx to be higher during real as compared to sham stimulation (main effect Stimulation F(1,16)=3.867, p=.067) and for Glx to be higher after than before stimulation (main effect Time F(1,16)=1.396, p=.078).

Discussion: Glx was increased during real compared to sham tDCS, and before compared to after stimulation. This could indicate that tDCS overall changes neuronal firing thresholds. However, we did not observe the expected three-way interaction of reduced glutamate levels in the dorsolateral prefrontal cortex and increased glutamate levels in the temporo-parietal cortex. This could be due to the relatively small sample. However, the present data analysis is preliminary and we aim to report findings for a larger dataset.